Characterization of exopolysaccharides produced by bacillus cereus and brachybacterium sp. isolated from Asian Sea Bass (Lates Calcarifer)

Abstract

Aims: EPS extracted from marine bacteria, which associated with Asian sea bass has potential antimicrobial activities. Methodology and Results: Two marine Bacteria were isolated from Asian sea bass (Lates calcarifer) obtained from aquaculture farm, located at Johor bahru Malaysia. 16S rRNA analysis for bacteria identity revealed that bacteria ors1 had 99 % identity to Bacillus cereus and ors2 had 96 % identity with Brachybacterium sp. All bacteria shared many similarities and variation in terms of biochemical reactions and microscopic observation. Exopolysaccharides (EPSs) were extracted and purified from bacteria as they produced mucous colonies. Average analysis of EPS components showed 50 % carbohydrates, 26 % protein and 24 % fatty acids. The FTIR analysis confirmed the functional groups of the EPS. Screening for antimicrobial activities assays using Kirby-Bauer methods against both grams positive and negative had shown presence of inhibition zones. Conclusion, significance and impact of study: This study recommends that bacteria isolated from Asian sea bass are having antimicrobial activities and could be used as a potential source for the development of marine drugs.